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LETTERS

CONCERNING THE

GENERAL HEALTH;

WITH

NOTES AND CONSIDERABLE ADDITIONS

TO

THE NUMBERS,

AS THEY LATELY APPEARED IN

THE NEW-YORK GAZETTE.

BY A HOUSEHOLDER.

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LETTERS

CONCERNING THE GENERAL HEALTH.

Nº. I.

MESS'RS LANG & TURNER,

THE public have been of late so much harassed with disputes about the origin of the Fevers which afflict our cities, that I fear nothing relating to the general health will at this time gain attention. Indeed, no motive would induce me to enter the lists of controversy in the medical disputes of the day. On the great question which has been agitated, sects and parties are distinctly formed ; reputation is committed upon each side of the controversy : the strife is now less for the discovery of truth, than for victory.

SUCH a division of public opinion, upon a subject so nearly interesting to our welfare, is in itself an additional calamity. For if, on the contrary, we were once all agreed upon the origin of our epidemics, we could then infuse into the letter and the execution of our laws, and into every branch of the police, a vigour which would not fail in a course of years to afford a fair test of the truth of at least one hypothesis. But while one half of the community believes that all laws against the importation of fevers are futile, and the other despises the precautions which are used to prevent the generation of them among us, it is evident, that neither system of precaution can long be pursued, with full effect.

IN such a state of things, to assume the style of controversy, and, in my opinion also, to continue it, is useless. Eve-

ry candid man ought to admit that the question in dispute is really attended with many difficulties ; and every sensible man knows that opinions will not, in fact, be soon united upon it.

BUT there are great questions remaining for the citizens of New-York to answer.—“ *Are no further means to be taken for the preservation of the city? Are there any measures which all or most men agree would be beneficial? What are those measures? And are they within our power to accomplish?*”—These are questions which the public, however they may be fatigued with some speculative discussions, will not cease to examine with a due regard to their prodigious importance. The city of New-York is the natural commercial capital of the middle, eastern, and north-western states. Nothing but pestilence, on the one hand, or on the other, such untoward political events as destroy our national power, can prevent its becoming the first city on the western continent, and one of the first in the world. Its importance to our government and policy will be proportionably great. Far the greatest part of this city is yet to be built. If there are errors to avoid, or improvements to introduce, we ought now to consider them. An immense mass of real property in New-York depends for its value upon the continuation of that trade, which, if driven into other channels, will leave nothing behind but empty walls and beggary. It is now more than ten years since the return of the yellow-fever has been habitual among us. It is time we had given up all hope of constant exemption from it, grounded on the idea either of a change in the *constitution of the atmosphere*, or in the state of the *West-India Islands*.

THESE reflections, and many of the like kind, have induced me to commit to paper some ideas upon the means, which, consistently with the opinions maintained by all our medical sects, may, under divine providence, and as far as human means can avail, be beneficially adopted. I shall send them to you for perusal, and, if you think they may be

useful, for publication. I have purposely avoided all controverted ground. I have sought for the points and principles on which most men agree, (for upon no others can we act efficiently); and have aimed to draw from them some *fair, useful, and practicable*, inferences.

A HOUSEHOLDER.

October 16th, 1805.

Nº. II.

Of certain points upon which the public opinion is united.

IN answer to one of the questions proposed in my letter of yesterday, I think it may be safely affirmed, that there are certain important principles in relation to the general health, to which all intelligent men, though they may differ as to the origin of particular epidemics, will readily assent. Of this description, I conceive, are among others, the following propositions and inferences:

1. IN pure country air, the yellow fever is either *not at all* infectious (or contagious,) or *very little so*. In the city air it spreads rapidly.

2. IN this climate, and in the hot season, dangerous fevers and acute disorders are frequent in and near marshy places, and in level rather than in uneven or hilly situations. Also near all collections of stagnant water, and among persons usually inhaling the effluviæ of putrefying substances.

3. IF many persons live crowded together in any situation, these disorders are likely to appear more frequently, and to be more malignant, than would be the case among a few persons, living scattered in the same situation.

4. ALSO, if stagnant fluids or putrefying matters are kept in confined situations, their bad effects become proportionably stronger.

5. ALL new-made and artificial grounds are much more

easily penetrated by water, and probably by heat also, than the natural earth. Water, poured in considerable quantities upon such grounds, may be usually expected to filtrate through them, till it finds the natural earth, or the level of neighbouring waters. On the contrary, in dry weather, they operate as a sponge to attract the water upwards, if it has access to them below, and in both ways have an unfavourable effect upon the air.

6. THE Island of New-York, as formed and situated by nature, was calculated to be a healthy place, and peculiarly well adapted to be the scite of a large city. The manner in which it has been laid out, built upon, and altered, has in many particulars tended to make it *unhealthy*.

7. THE city of New-York, and its air, now differ from good country situations, in all the particulars which have been before enumerated, as tending to affect the atmosphere, and make certain domestic diseases more frequent. The same causes, and the same state of the air, tend equally to spread and communicate an *imported* pestilence.

8. IF, therefore, these qualities of the city atmosphere could be in any measure corrected, it would be in proportion less likely to *generate domestic*, and *spread imported fevers*; for in that proportion, the city air would be more like that of the country.

9. SUPPOSING that *we could, with absolute certainty, prevent* all future importation of disease, still the city of New-York, in its present state, (as well as all other considerable towns in the union,) may be deemed more liable to malignant fevers than the greater part of unhealthy places in the country.—Even such a measure of sickness as might be thence expected, would be very destructive.—This liability will increase with the growth of numbers; and, if our present systems are persevered in, with the increase of all the other causes of bad air and disease that have been enumerated.

10. AND if on the contrary, *we cannot always be perfectly sure* of excluding the importation of diseases, we may expect that the yellow fever, and other imported disorders, will be

destructive in proportion to the operation and growth of the causes which have been mentioned, as adding to their frequency and malignity, and that they will be *mild* in proportion to the diminution of those causes.

PERMIT me to repeat, that these positions are not laid down as topics of controversy, nor with any intent to *dispute* about them; neither are they proposed as containing any *system* concerning the origin of fevers, or pretending to embrace the *whole* subject to which they relate.—All this is *purposely* avoided, in order to obtain what I think the more desirable end, which is *a union of opinion* upon *some* points. I state those to which I conceive the greatest number of us will make *fewest objections*. For when we advance systems or dogmas, or lay down general rules and universal propositions, our opinions will not fail to divide on some points, and we shall be the less likely to derive any *practical good* from the consequent discussions. It is *practical good* at which I aim.

IF, then, the positions which I have been stating, or the *greatest part* of them, are correct in substance, they present our situation to us in a somewhat novel, and very interesting point of view. We all agree, that this climate is liable, in unhealthy situations and in the fall season, to violent and destructive fevers. If the Island of New-York had no city upon it, the inhabitants would still be as liable to sickness as others in situations of no greater exposure. I presume also, we all believe, that in its present situation, the city unites in an eminent degree, many of the causes, which, as far as human sagacity can penetrate, seem favourable to the production and malignity of domestic fevers. (I do not forget that in particular seasons we escape general sickness, just as those places which in the country are most usually sickly may, in some instances, prove quite salubrious.) We are also agreed, that if our air were as pure as that of the country, the yellow fever, when imported, would not have any great or rapid circulation. The purer the atmosphere, the less infectious the fever. The question, therefore, "*whether*

imported or not," seems to me little important. It is not the only disease among us, and if never imported we should still have epidemics. When brought from abroad, the extent of its ravages depends upon the support it derives from our own atmosphere. We should guard with vigilance against importation. But our own sense, without the aid of experience, should have taught us, that vigilance may sometimes be unavailing, and that there exists not in this country any police or government, powerful enough to exclude the importation of an infectious disorder.

THE more important and desirable, and, I will add, the more *attainable* end, is to repel the fever when it comes, by the aid of a healthy atmosphere. But if this is omitted, we are not to expect that the laws of nature and providence will be altered in our favour, nor that we can enjoy health, while we take no such precautions against sickness as reason and experience dictate.—While *we* plant the plague, it is of no consequence who sows pestilence.

A HOUSEHOLDER.

October 17th, 1805.



Nº. III.

Of the natural situation; &c. of York-Island, and of the artificial alterations it has undergone.

IT was said in Thursday's paper, "that the Island of New-York, as formed and situated by nature, was calculated to be a healthy place, and was peculiarly well adapted to be the scite of a great city;" and that "the manner in which it has been laid out, built upon, and altered, has, in many particulars, tended to make it unhealthy." Although it may be unnecessary to prove positions which few persons will dispute, yet I think it will not be unamusing, and certainly not useless, to take a view at this time of

the natural and artificial geology of the Island. In attempting this, the want of *accurate* information will sometimes oblige me to state facts in a manner rather vague, and at others to state those for which my best authority is loose tradition, or only probable conjecture. The more important facts will, however, be *substantially* correct. The reader is supposed to be acquainted with the present geography of the city.

YORK-ISLAND is about fifteen miles in length, and generally from one to two broad. It is wholly surrounded by tide waters, which wash its shores with a considerable current. The tide is believed to be about two hours earlier in its flood and ebb in one river than the other, and measuring across the southern part of the Island, there is much of the day a difference of eighteen inches or two feet in the level of the two rivers. At King's bridge the usual difference is believed to be about three or four feet.

THE present town is built upon the south end, and most upon the south-western corner of the island. This place is about thirty miles from the coast, and enjoys in a considerable degree the benefit of the sea-breezes.

WE may imagine the Island itself to be composed of several fragments of that great chain of rocks, which binds the shores of the Hudson. These fragments once composed separate islands, divided from each other by narrow straits, the traces of which are still visible. Some tracts of the land, which seem to have been formed from the water at later periods, are now *marshy*. That part of the *upland* on which the town is built, is generally composed of sand and gravel, and in its natural state was much more broken into steep and irregular hills and declivities than we now see it: there was very little level ground, except in the marshes. We all see and remember with what immense labour, both now and for many years past, hills have been taken down and vallies filled, and a dead level, or sluggish descent produced, where Nature had kindly shaped the surface unequal enough to lead the waters rapidly away.

IN the south-western part of the Island, a hill or ridge of ground began where the new City-Hall is now building, and extended to the place where fort Amsterdam formerly stood, and which is now occupied by the government house. From this ridge the descent was generally rather steep and rugged, on the right to the Hudson, the former shore of which was then beneath a high bank, and is now for a considerable distance occupied by Greenwich-street. Towards the south and south-east the declivity was somewhat more gradual, and the distance longer to the East river. Several small rivulets took their origin in the south-eastern side of the ridge, and ran to the East river, shaping the ground in their course into little vallies, and leaving corresponding heights and ridges of ground between them. The streets were not laid out upon any pre-conceived plan. The earliest of them diverged from the fort as from a centre, and took such directions along the shores or the ridges as the shape of the ground made convenient to men and animals. Other streets were governed by the course of the rivulets. Thus Broad-street, Maiden-lane, Ferry-street, and Roosevelt-street, are formed by the buildings which would be naturally placed along the opposite sides of the creeks. Wall, Pine, John, Beekman, and the upper part of Pearl-streets, show the direction of the high grounds between. Pearl-street, which is less winding than the natural shore of the East river, was, a part of its distance, first formed by buildings on the upper side only, facing the water, and leaving a road between them and the shore. This road was first directed as the shape and nature of the ground required, sometimes passing over points of land, as at Hanover-square and Beekman-street, and at others receding from the shore to avoid a marsh, as at the *vlie* where Fly-market now stands, and which was a salt meadow made by the mouth of the small creek coming down Maiden-lane. The tide must have flowed up this creek to about the foot of Liberty-street, or perhaps farther. Eastward of the upper part of Pearl-street, the ground suddenly sunk into a considerable level,

a part of which was a *swamp* within the memory of living persons.

ON the north side of the hill first mentioned, the ground descends suddenly to the Collect, a pond of many acres, about equally distant from the two rivers. Its outlet, which is to the westward, forms the extensive low grounds in the neighbourhood of Mr. Lispenard's. The head of this pond, and of the creek that ran through Roosevelt-street, are separated only by a low barrier of earth, which might easily be cut through, and thus unite the two rivers. The ground west of the Bowery, as far north as Bunker's Hill *, de-

* Though I had no doubt at the time of writing this, of what since appears on examination to be the fact, yet the apprehension of committing some possible mistake induced me not to be more particular in describing the extent of grounds which drain into the Collect. I will now add a word on that subject.

At Col. Burr's house on the North river, begins a ridge of ground, which extends obliquely from thence to Mr. Varick's, Mrs. Glover's, Mr. Neilson's, and beyond Randall's. Corresponding with this, in nearly its whole extent on the south-east side, is a hollow which leads towards the Collect, but contains no open and visible run of water. On the south-west, Reed-street carries its waters to the North river, but beyond that the bank of the river itself is raised, and the streets descend towards the outlet of the Collect. On the other side, beginning at the Jail and Magazine, and thence following Cherry-street and the Bowery as far as Bunker's Hill, all the waters *on the left hand* of the streets may be considered as draining into the same reservoir. But this is not all: At that part of the Bowery where the buildings cease to be contiguous, that is, near Bunker's Hill, a low pitch is made in the regulation of the street, where the reader will remember to have often passed a *mud-pool*. This is a drain, which, if the expression may be allowed, leads *no where*, though it *comes* from a considerable distance, and must one day go into the Collect. From this point the street of the Bowery rises with a gentle ascent for perhaps a quarter of a mile, and it must hereafter receive the water of a considerable tract of land *to the east of it*. Where, then, do the grounds to the *west* of the Bowery, and between it and Broadway, descend to? Let this ground be viewed, and the astonishing fact shall be presented, that the Collect and its outlet now do, or one day must, receive the refuse water of the wide tract from Reed-street to near Mr. Neilson's, from the Bowery to the North river in one part, and to the ridge of ground described in this Note on the other. Bunker's hill is not the *boundary*, but an island near the *centre* of this tract. I think these bounds cannot contain less than one and an half square miles; but suppose the tract only a square mile, or 640

scends towards the Collect, which thus receives the surplus water of several hundred acres of land.

I NEVER contemplate the felicity of situation and form which this Island enjoys, without renewed confidence in the benevolent designs of Providence in respect to it. The conformation of this part of the continent required a great city at the mouth of the Hudson :—an Island is formed for the purpose, large enough to have built Rome upon, and scarcely more than two miles wide. At the mouth of any other great river, this Island would have been a dead marsh, surrounded by a like country. *Here* it is high, bold, and hilly. In most other places the sea would rise and fall without current. *Here*, the operation of alternate and conflicting tides cleanses the shores, and tends to preserve the purity of the earth, the air, and the water. The very marshes themselves indicate the paths where canals with rapid currents of tide water, might easily be made to pass through the Island. This must needs be a commercial city, and yet required such a disposition of its commerce as to be healthy. *To aid this object*, we see its own shores conveniently formed for the access of shipping for more than 25 miles round. No other place on earth has such an advantage. On the borders of the ocean, and yet *land-locked*; surrounded by fields and cultivation, and yet enjoying the refreshing water-breezes from every point except the coolest; and having access to more than 1000 miles of other coasts and shores, within 160 miles from its own wharves :—Such an union of happy circumstances has never, I believe, been witnessed in any other place. I WILL NOT BELIEVE that the avarice and folly of men are destined to destroy it.

THE Collect is now filling up with earth, and is intended to be sold and built upon.

IT may be difficult, at this time, to say, whether upon the whole scite of the present town, there was enough surplus

acres, it will on the most moderate calculation, contain, when the town shall cover it, 50,000 inhabitants.

earth in the hills, to have raised the low ground to a convenient height, had the whole been judiciously disposed. We know, however, that enormous expenses have been incurred in removing hills which were salutary, to build wharves which are unnecessary and pernicious.

A PART of the lower end of *Pearl-street*, and of some streets crossing it, and all of *Water*, *Front*, and *South-streets*, are built where the water once flowed, on ground made by constructing *wharves*, which have always been composed of *logs and loose stones*, filled up sometimes with earth, but often with bones, offals, ordure, and every species of corrupt and putrefying matter. The tract of ground thus made, reckoning only from the *Battery* to the beginning of *Cherry-street*, may contain about *ninety acres*. Those docks * next the shore were built *first*, and built without any expectation that others would be extended so far beyond them. They were at first raised no higher than was *then* deemed necessary to defend them from being overflowed; and *so high*, at least, the new ones must be raised. There is, therefore, upon this statement, no room for any descent through these grounds towards the river. But this is not all; for the weight of buildings, the operation of water, which is known to penetrate through all the crevices of these docks and wharves, and the aid of time, which moulders all perishable substances, do, as I believe, gradually sink and press down all the grounds thus made. The oldest sink *first*, and *most*. Thus there is a perpetual tendency in all these grounds to assume a form descending *inwards*, that is, *from* the river, and *towards Pearl-street*. The lower part of *Pine-street* afforded, till lately, an example to prove the justice of this remark †.

* The word *dock*, as well as many other terms and expressions, are used according to their popular sense in this town. It need not be explained, that I have been more desirous to convince the public, than to gratify the lovers of fine writing.

† These ideas might be applied with equal propriety to the operations going on upon the North river, and in front of *Cherry-street*. Let the reader imagine our town quite surrounded by a border of three streets made from the water!

I THOUGHT it proper to premise thus much respecting the geological situation of our city. In my next letter I shall make the application of some of these facts.

A HOUSEHOLDER.

October 19th, 1805.

Nº. IV.

Of the means in our power to remedy the bad qualities of the city air—and first, of Canals.

UNDER this head I propose to consider no measures but those which, with a due regard to our actual resources and situation, are to be deemed *practicable*. It is in vain to talk of restoring the land or the water to their former places. We can build pyramids and hew out sphinxes if we please; but we *cannot* remove all Water, Front, South, and Washington-streets, with the buildings above, and the wharves beneath them. We *cannot* restore the East river to its former bed, nor rebuild upon the land the hills which nature so kindly gave us.

THE first measure I propose is, that canals be opened in the following directions, viz:—one through the Fly-market, Maiden-lane, and Courtland-street, connecting the two rivers: one through the Collect and its outlet, and through Roosevelt-street, connecting the two rivers also: and one through Water-street to Peck-slip, or even to Corlaer's Hook, if necessary.

I SHALL here add a few remarks relative to the canals through Maiden-lane and Water-street.

IT is obvious, that the waters, which from the parts eastward of Broadway, run towards the river, may have a sufficient current to carry along much of the filth mixed with them, till they come to the level of the place which was the natural shore of the island; there the descent for the most

part ceases, or becomes very small. To that place the collected filth of half the town arrives, and together with that which is produced on the *made ground*, is first disposed of in one of two ways; either upon the surface or in the sewers below. The filthy water, which arrives upon the surface of the level grounds, will undergo the double operation of filtration downwards, and evaporation upwards. No doubt much of the water finds its way through cellars and yards, and some of it through pavements, to the tide below. But the passages it seeks will generally be too small to admit much else besides the water itself, which, as if strained through a bed of sand, may run out somewhat purified, while its feculencies are left on the surface, or lodged among the earth, through which it filtered.

EVAPORATION of the stagnant water in the streets I speak of, and in all level streets, produces effects more obvious to the senses. We all know that the stench arising from it, and from the putrefaction going on at the same time, is often, and especially after rains, excessively offensive.

WITH regard to filth descending in sewers:—We have seen before, that the wharves are built no higher than to save them from the danger of spring tides; and that the old ones are not probably so high now as formerly. A sewer coming down any street, (for example, Maiden-lane,) is already some distance under the surface, when it first arrives at the *made ground*; at that point, therefore, it will usually be nearly or quite as low as the ordinary flood tide; the remaining course of the sewer through the *made ground*, may be either considerably descending, in which case the tide will usually fill it, or it may be nearly level, (as I presume they commonly are,) in which case the filth will be deposited, and remain in the sewer, and there putrefy. I think, indeed, that this last effect will as certainly follow, even if the tide flows into the sewer, and there meets the stream of filth and water; for below, where these waters meet, there can be no current, except what the tide produces. The natural and usual operation of the tide is *to cast on shore*, and not to take

away *floating substances*; such will therefore be left in the sewer, and those things which sink will seldom or never be washed out.

THE true and undoubted consequence of these facts is, that the filth of that part of the town east of Broadway is *not* carried into the river. It is deposited upon the surface of Water, Front, and South-streets, or in the sewers under them, or among the logs, stones, and dirt, of which those streets are composed. There the whole mass ferments and putrefies, and the inhabitants breath its exhalations.

SOME of these facts may explain the true reason why workmen are so often seen altering or opening the sewer through Maiden-lane and the Fly-market. If that sewer goes low enough to reach the natural swamp on which that part of the town is built, it will never be long free of obstructions.

FROM the present appearances we may conclude, that the *vlie* formerly began near the foot of Liberty-street, and extended in an oblique direction, across the intervening squares at the left, to Gold-street, and near to the foot of the hill of John-street; on the other side it extended but little further west than Maiden-lane now runs. I have never been informed, nor is it material, how far it reached in front to the water—the difference between a *marsh* and a *wharf*, is not worth noticing. Thus the whole of Maiden-lane, from Liberty-street downwards, and all Pearl-street, from the Fly-market to Burling-slip *, (except a few houses on the upper side,) are built *upon a swamp*.

MAIDEN-LANE is now itself a common sewer, or a receptacle of filth, for a very extensive and crowded part of the city, reaching, with few exceptions, from John to Pine-street, and from Broadway to the East river. It may be questioned whether this district is not more thickly inhabit-

* WHEN this was published, the writer could not ascertain with certainty, and therefore forbore to say whether the *vlie* had extended farther East. He has since found the fact to be, as he before suspected, that it extended to *Beekman-slip*.

ed, than any other in the city of equal extent. Its neighbourhood has often been, and upon our present system always will be, unhealthy. I repeat, that the waters of the marsh *are not drained*; the filth on the surface of it *is not washed away*. It stagnates, ferments, putrefies, and is finally decomposed upon the spot. If there is *no poison* in the exhalations which arise from this and from the marsh below, our ideas are all wrong; but if there *is any*, the inhabitants work, eat, sleep, and move, in the midst of it*.

THE canal I propose through Maiden-lane, is obviously a remedy for all these evils. It will immediately receive the water, and all substances it bears along, as they come rapidly down the descending streets and sewers. It will afford an opportunity to drain every neighbouring cellar and sunken place to a point as low as the tide water will permit; and the drain will not be circuitous, but direct: there will be neither place for the filth to be deposited, nor time for it to putrefy.

A HOUSEHOLDER.

October 22d, 1805.

* PERHAPS the body of the public are not aware of the vast quantity of water which daily arises from the earth, in exhalation. It is not within my design to cite philosophic experiments in proof of my positions, or to go into any learned disquisitions. However, this subject is so important, that I will say a very little by way of proof and illustration.

EXPERIMENTS have shown, that in very dry weather, the exhalations from an acre of ground are equal to 1600 gallons of water per day—in wet weather, more than twice as much. It is *always wet weather* among the rotten logs under Water-street, &c. and in all collections of putrefying substances; but say the average evaporation is 2400 gallons a day. A gallon of water will make much more than 10,000—of *hot steam*, and probably at least so much *vapour*, such as rises from the ground. Suppose it, however, only *half as much*; it will be found, by pursuing these premises to their results, that the vapour alone arising from the earth will, every 24 hours, be equal to an atmosphere almost 30 feet high! In another form:—Suppose we all breathe from an atmosphere of 6 feet in height from the ground—Then this atmosphere which we breathe, will be renewed, or at least newly replenished, about 5 times each day, with steam from the earth below. *The cellars, gutters, marshes, made-ground, sewers, and sinks, afford us in warm weather, five new atmospheres, of their exhalations, each day, for our breathing!*

N^o. V.

Benefit of Canals, as respects the descent of Streets towards them—objections considered.

IN Tuesday's paper it was attempted to explain, with considerable minuteness and detail, the operation of those evils which nothing but canals can remedy.—The explanation of the evil pointed out the cure; which indeed is not difficult to be found, for there is no other in existence. If those things which I have mentioned as tending to deprave the purity of our air do exist in point of fact, and have the tendency insisted on, there is but one alternative—it is either to *endure them*, or to remedy them in the manner I propose.

I HAVE shortly exemplified, in speaking of Maiden-lane, the necessity and benefits of canals, as respects drains and sewers.

BUT another very important advantage which they may afford, is, a new regulation of the surface of the streets adjoining them. (This ought to be done at the public expense.) It is a curious fact that most of the streets which cross the course of the canal, through Maiden-lane, &c. to which my present observations more particularly apply, are for a considerable distance from the point of intersection, on a dead level. I say a *dead level*, because I think the angle of descent in many of them would defy the powers of mensuration and geometry; and even in others the customary descent of half or three quarters of an inch or even a whole inch in ten feet, gives no motion to the putrefying and sluggish mass of mud and filth always seen in the gutters. Let the reader run over in his mind the situation of Front-street, Water-street, Broadway and Greenwich-street, where they would intersect the proposed canal: Add to this, Pearl-street, and Gold-street for a considerable distance east of it, the Fly-market on both sides, and some portion of Maiden-lane itself: In these places, the filth in front of one house is swept along the gutter opposite the next neighbour—That neighbour either sweeps it back,

or forwards, or leaves it undisturbed, or throws the grosser part of it upon the heap of dirt in the street, as may suit the fancy of the servant—None of it ever reaches the river, except perhaps in a great shower. Suppose a bucket of foul water poured into the gutter on the east side of Broadway, at any place within three hundred feet of the Oswego-market:—Does any person believe that one drop of it will reach the Fly-market Slip?—But by the means which we have been considering, Broadway, Greenwich-street, Front, Gold, and Pearl-streets, might receive a bold and cleanly descent to the canal.

THE name of the Oswego-market has reminded me of one more incidental advantage attending my proposal—The canal may possibly oblige us to remove that disgraceful nuisance.

BEFORE proceeding to add what I had intended in relation to the other canals, it may be proper to answer an objection which will probably be urged against all of them. It is, “*that these canals will themselves be depositories of filth, inas-*”
 “*much as no sufficient current of water can be made to run*”
 “*through and cleanse them.*” The answer is a simple one.

WE have seen that on the opposite sides of the town there is much of the time a difference of from 18 to 24 inches in the height of the tide water. This is however made more perceptible to common observation, by stating that the difference is such as every tide to cause a strong current to flow from one river into the other in the long and crooked course round the point of the battery.—Now, from the Fly-market to the foot of Courtland-street, going round the battery as the tide runs, is perhaps three times as far as the length of the canal across. But suppose it one mile round, and half a mile across—the whole descent is the same in both cases, say *a foot*. If the descent of one foot in a mile will carry a strong current in the rivers, and that too in a course broken by a sharp turn—certainly *one foot in half a mile*, will give a swift current through a smooth, straight, and unobstructed canal. The same reasoning applies in substance to the ca-

nal through the Collect; and another circumstance which will be mentioned below, strengthens the inference with respect to both of them.

IN the Water-street canal it is true that there will be the same and no greater descent than in the east river, to which it will be parallel—and it may be supposed that the friction of the water and the obstacles meeting it in a confined channel, will so obstruct the current as to make it too slow. On this I remark,

1. THAT the current of the East river is, as I presume from observation, equal in the whole to three miles an hour, for three hours each tide. Suppose the canal a mile long, and that, owing to the obstacles mentioned, its current should be but half as rapid, that is, 1 1-2 miles an hour—then the water of the canal would be completely changed four times and an half each tide, that is, eighteen times a day. If the fraction ought to be rejected, it will be sixteen times.

2. THE whole current of the East river from Corlaer's Hook to the neighbourhood of Peck-slip, is *towards the west or north-west*. At Peck-slip the shore of the island turns more southerly, but the force acquired by the current inclines it to pursue as much as possible *in a straight line* the course it had, *before arriving there*. It will therefore *drive towards* and impinge against the shore of the city, and strongly incline to enter any canal there open to it.

3. THE current both ways may be greatly aided by wharves or embankments, laid from the mouths of the canals obliquely in the stream.

I HOPE these observations may be deemed quite satisfactory on the question concerning the current of water in the canals.

AN objection to the canals may also arise from the idea, that they will obstruct the streets they pass through, and make the stores and houses inaccessible to carts and carriages. On this it may be remarked, in the first place, that the circumstance of the canals being *open* is no wise *essential* to my plan. I should indeed *prefer* them to be so, for many rea-

sons : the water would then help to keep the air cool in summer ; the gutters of the streets might enter the canals more conveniently—they certainly would not engender *damps* of any ill effect—they might afford passages for boats—they would be less expensive in the construction, and more accessible for the purpose of repairs, &c. &c. But should it be thought best, on the whole, to have them wholly arched over, they would be *no obstruction* to the streets.

THE canals might also be arched along the *narrower streets only*. But suppose them wholly open (except where the streets cross,) and railed at the sides—a regulation would then be necessary, by which carts and carriages should drive always on the *right* or the *left*—This, and a few additional rules to prohibit fuel and goods being left in the streets, would prevent all confusion. One or two inhabitants might be appointed at each canal, with powers to see these rules executed, and they would soon go into effect without any difficulty : Indeed, public opinion and common convenience, would enforce these rules more efficaciously than any penalties.

A HOUSEHOLDER.

October 24th, 1805.

Nº. VI.

Of the probable expense of the proposed Canals.

HAVING promised to propose nothing but what I deem really practicable, in reference to our power and resources, it becomes proper to justify by fair estimates the opinion entertained, that we are well able to open these canals.

LET it be remembered, that these public works are proposed as a probable, and, indeed, to some extent, a certain remedy for the evil of epidemic fevers. The question, therefore, how far we can afford to open the canals, depends

in some measure upon the expenses we must incur, by the continuance of the evil in question. We can afford to pay, at least, as much for *health* as for *sickness*.

WHEN the yellow fever has prevailed among us, there has been a consequent interruption of business and dispersion of the inhabitants for different periods, from one to nearly three months. I presume six weeks, or one month and an half, is a moderate calculation for the present season, or for the average of different seasons.

I PRESUME also, that as many as half our inhabitants, suppose 30,000 people of our present population, usually remove in consequence of fever—these are, generally speaking, the more wealthy inhabitants, and those on whom others depend for employment. The town-houses, inhabited by such persons, may, I believe, be fairly reckoned at an average rent of 500 dollars each. Six persons are usually reckoned to a family—Then,

ONE and an half month's rent of 5000 houses, at 500 dollars each, per ann. is	312,500
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SUPPOSE that only 500 persons use separate stores, manufactories, &c. and that those on an average are also 500 dollars each—1 1-2 month's rent is	31,250
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EVERY family removing, must necessarily incur <i>some</i> expense and loss, in the removal of per- sons and furniture, and in travelling and ex- tra expenses of all kinds in the country. There can be no rule to estimate these—let it be stated at no more than 50 dollars for each family,	30,000
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THE loss of nearly all our labour, during the sickness, is a thing impossible to estimate— we may, however, form some idea of the whole, from a calculation of part. Suppose one in ten of our whole population to be persons at wages, and to lose the proportion of their time we have before stated—say 40 days' la- bour each, for 7000 persons, at one dol. .	280,000
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EXTRA public expenses in consequence of fever, incurred by the watch, hospital, and alms-house establishments, &c. These must be very considerable, but I have no guide by which to estimate them—suppose in the whole, 20,000

\$ 673,750

IT is obvious, that these are but few of the numberless items which constitute the vast expense of breaking up and removing a great city, with all its private and public establishments, and the loss of its industry for one-eighth of a year. We might add the extra expense of our trade at home, the loss of that which is diverted to other channels, the embarrassments attending commerce abroad, and many others. But enough has been stated for every purpose of argument or inference. My object was not to form an *estimate* on this head, but to present hereafter some comparison between the expense of all the measures I recommend, and those actually attending the present state of things.

THE following estimate, without pretending to the accuracy of professional information, will give some idea of the probable expense of the canal through Maiden-lane, &c.

IT is believed, that the price of earth in favourable situations, is five cents per load: in other cases two cents. The purchaser digs and takes it away. The far greater part of this canal would be convenient to places where earth is wanted to complete the intended line of wharves and piers in the two rivers, and if, as I shall hereafter propose, the sinks and wet cellars shall be filled, the earth will be much in demand for those purposes; and, in some of those ways, would probably pay the expense of digging the canal. I have however allowed, from greater caution, 3000 dollars for *digging* it. The following calculation is made upon the supposition, that the canal will be 2500 feet long, 10 feet wide, and 10 feet deep. I suppose arched bridges to be made at the intersections of the streets, and the whole canal

to be arched over, for some distance each side of Broadway, where the depth of it would be greatest. The expense is estimated as follows:—

Digging, say	3,000
Bed or floor of the canal, 25,000 square feet, with flagging stone laid down, at 2s.	6,250
Sides of hewn stone, 50,000 feet at 4s.	25,000
Suppose 600 feet of arching, running measure—say 7,200 square feet of hewn stone, at 4s.	3,600
Masons' work and materials, excepting stone and the bed of the canal, say	6,000
Carpenters' work, and iron railing at the open parts of the canal, and contingent expenses, say	6,150
	<hr/>
	\$ 55,000

It will be observed, that the items which we have any measure to calculate, are estimated at the highest prices now charged by the mechanics for small jobs. In all respects, it is believed that full allowances are made.

FIFTY-FIVE or sixty thousand dollars is not more than the inhabitants living within the benefit of the canal pay on account of epidemic sickness, *every year* it happens. Those very inhabitants might well afford to defray the whole expense of this canal, were it only for the probable benefit they would derive from it, in the mitigation and shorter continuance of epidemic sickness, in occasional advantage to their cellars, &c. and in the increased value of property in the whole district. But I contend that the work should be done at the public charge, and shall hereafter speak of the means of defraying it.

It is so easy to oppose every improvement by objecting to the expense, and opposition from this source is so common, that I thought myself called upon to present the public these calculations, before finishing the remarks upon canals. If every visit of yellow fever costs a million, or only half a million of dollars, it cannot be forgotten, that the much more grievous and afflicting circumstances attending

it, are not the subject of any estimate or calculation. At the same time, we must remember the effect which our habitual liability to this disorder will have upon the future growth and prosperity of the city, while the channels of trade are not settled, and the prize of commercial superiority is in contest among the leading cities of the United States. With such a prize, and such a penalty before us, what are our exertions? Other cities in the Union are already enriched with many of those monuments, which polished and public-spirited nations have always delighted to erect for the health, convenience, or embellishment, of their capital cities. Charleston and Richmond have their canals—Philadelphia its excellent water-works, and Boston its bridges. We, on the contrary, have no water but for culinary purposes. We breathe an air tainted with every putrid and nauseous exhalation. We live in multitudes, crowded together upon undrained swamps and made grounds. Our quarantine establishments are very imperfect. Thus surrounded by dangers, we sleep in the midst of them, or only adopt the same hackneyed and unavailing measures of precaution. We sweep the surface of our streets, then fold our arms, trust fortune, and shut our eyes; or else employ ourselves in disputing about the origin of yellow fever! Meantime, our disputes do not prevent its return. The money lost by a single visit of this calamity, would suffice to make the canals I advocate, to fill up all our sinks, and drain or fill every wet cellar in the city, to new-regulate the streets and sewers with sufficient descent, and to give us abundant supplies of fresh water, to keep the streets cool and purified.

A HOUSEHOLDER.

October 26th, 1805.

N^o. VII.

Of the plan lately adopted by the Common Council, in relation to the Collect.

I HAVE understood, that for some years, the Common Council hesitated which to adopt, among several plans that presented themselves, in relation to the Collect, and the adjoining grounds. It is lately stated, that they have definitely adopted one, which, as I understand, is to the following effect:—That the Collect be filled up with earth, to a level, a little above the present surface of the water, which level it is intended to be built upon—that one or more sewers be laid through the whole length of it, to a point near the bridge in Broadway—that from that point, an open canal be made to the North River. This canal is intended to receive and convey away, all the filth and superfluous water, which the streets and sewers will one day bring, from the extensive grounds that descend towards it. From observing the manner in which the work is actually done, I presume the whole will have no greater descent, than just to give the water on the surface, a motion towards the outlet.

THE occasion, however, admonishes me to apologize to that respectable Corporation, and to the public, if in this or other particulars, my statements of *minute* facts, and *matters of detail*, are not always accurate. The dispersed situation of our inhabitants, furnishes the only leisure I could find, to write my thoughts on these subjects; but at the same time, removes from me that convenient access to official men, and public documents, without which, I cannot be sure of *exactness* in minute details.

THE plan of the Corporation, which I have mentioned, (or any other plan, going at all upon similar principles,) seems liable to the following objections:—

1. THE filling of the Collect with loose earth, or any other materials, cannot prevent the water in the surrounding hills,

from following the channels which nature formed for it, and oozing out near the same places where the springs formerly existed. Every natural pond, (except those supplied by open streams,) is chiefly sustained by springs which come from the body of neighbouring hills, and may be found running out near the edge of the marsh, or the shore.

FURTHER, it is not possible that all the water which falls or runs upon the new-made ground, should be *carried off* in the streets or otherwise—much of it will find its way downwards, (as I before observed in speaking of the docks,) through the made earth. The ground below will still be soaked with water, and not dry and firm like natural earth; it will also soon become black and slimy, from retaining the putrescent contents of the water which filters through it. I appeal to all those who have opened old made grounds in like situations, whether such is not the fact.—The Collect, therefore, will still be a *Collect* * (*of water and filth*,) as truly as if it had been filled up with paving stones, instead of earth.

2. LET it be remembered, that the waters of this pond naturally moved off with a very small descent and sluggish current to the north River; therefore the surface of it is not much higher than half tide in the Hudson; I believe not so high as the tide of flood. The floor of the Canal proposed by the Corporation must at its outlet be *as high as the river, at a point above low water mark*—it must also have *some descent*—therefore the *head* (and indeed all the upper part of it) will, I think, be somewhat above the level of the usual flood tide, and all the sewers emptying into this canal must, in their whole length, be higher still. If this is so, the canal and the sewers coming into its head can go very little below the surface of the ground now making in the Collect: they can scarcely, I think, be as low as the water used to be—therefore the vast and deep bason of the Collect remains undrain-

* The public will pardon this *pun*—I know that the word '*Collect*' is a corruption of a Dutch word signifying a *pond*.

ed for all, or nearly all its depth; and cellars and other moist and deep places on the new grounds must always remain in the same situation.

THE like consequence follows in all the low grounds called Mr. Lispenard's, except those near the river—It is perfectly plain that they are not high enough to admit of a *descending* drain, which is to empty into a *descending* canal that *leads* to the river. I do not mean that such drains cannot be constructed; nor that men cannot be found who will *assert* they are sufficient; but I say confidently, that they will not diminish the *natural* moisture or unhealthiness of the natural ground in that marsh.

I KNOW also, by spreading a coat of loose earth over the swamp I speak of, the marshiness may be concealed from the view, and the surface made to appear dry at times as in Water and Front-streets. It is not the less true, that the marsh below and in the bottom of the Collect *exists*. The more volatile parts of the fluids which collect there will come up by exhalation—the more gross will remain to ferment and putrefy:—Wasting fevers and dysenteries will continue to inform future physicians how these grounds were made, in ages when we, though not our errors, shall be lost in oblivion.

THE Canal proposed by the Corporation must depend for its supplies of water upon two sources, viz.—1. Rain—2. The foul waters coming from kitchens, manufactories, cellars, &c. The supply of the latter will be constant and pretty uniform, and in the hot season will fill the canal with a sluggish stream and putrid sediment. The qualities of such a place may be perfectly understood by recollecting the appearance and scent of one of our filthy slips, where a vast mass of corruption is kept moist and exposed to the hot sun. This canal will be one continued slip many hundred yards in length, filled with the wash of kitchens, manufactories, sinks, and laundries. There is not a more baleful exhalation in nature than that arising from the putrefaction of waters which have once been applied to the domestic uses of

mankind. It is true, however, that a great and sudden fall of rain may *cleanse* these conduits. It is also true that *without* that great and sudden fall of rain, there will be *no way to cleanse them*; and that in such a drought as that of the last summer, or even as commonly happens, the neighbourhood of such canals would certainly be uninhabitable. How can it be otherwise, when in our climate the filth of two or three hundred acres* of a thickly built city, shall be poured into the canal and its branches, with no regular supply of pure water to wash them?—The entire stream of the Bronx would not, in summer, be sufficient to keep them cleansed.

4. IN considerable floods of rain, the canal, unless made very large, will overflow. What I have said of the extent of the tract* whose waters it must receive, is proof enough of this; and, as an example, I will remind the public of the great fall of rain in August 1798, which absolutely flooded the low grounds at Lispenard's, and left them covered with water for some days; I believe for a week or two.

5. IT is possible, that the better to clear this canal, resort will be had to the expedient of locks or gates to shut out the tide of flood, and *shut in* the drainings of the town, till the time of low water gives an opportunity to let out the latter *suddenly*, and with the greater current. The objections to this are obvious. It will keep the filth and water collected in the canal in a stagnant state exposed to the sun or heat, at least two thirds or three quarters of the time, perhaps longer. It will require the constant superintendence of at least one person day and night to open and shut the locks, as the state of tide, rains, &c. may require. The support and pay of persons sufficiently vigilant and trust-worthy for this purpose would be expensive: Accidents will occasionally happen, and must be expected, to prevent the right operation of the locks, and then a great part of the town will be flooded by the tide or its own filth, or both.

6. I HAVE understood that the bottom of the canal is to

* See Note at the end of No. 3. There is certainly more than 600 Acres of this ground—perhaps 1000.

be dishing or elliptical. This may be the best form, but I should conceive would make it more expensive than an equal length of such a canal as I have proposed, the bottom of which will be of flagging. It will be subject also to various difficulties and accidents, as being of more complex and nice construction. Probably, therefore, the expense of it would not fall much short of that of a canal more simply constructed from river to river.

7. IF it is intended to clear this canal by any machinery or manual operation, then I affirm with confidence, that every such method will be found on experience to be irregular and desultory, in point of time—too expensive, and above all, ineffectual for the purpose. How much mud will a scraper leave to putrefy in such a channel!—Nothing but water can cleanse it effectually.

IT will be observed, that in shortly stating what I deem to be the insuperable objections to this plan, I have not extended and applied them to the greater or less descent which the proposed canal may have. Nature has fixed the limits of that descent by the water of the Hudson at one end, and the surface of the marsh round the Collect at the other. If made more descending, it will not drain the latter grounds: if nearly level, it will be choked up with filth, and not discharge its waters. My opinion indeed is, that it must unite *both* evils.

A HOUSEHOLDER.

October 30th, 1805.

Nº. VIII.

Of the Water-street Canal; and how the interests of that neighbourhood are affected by it.

TO detail at length the particular advantages attending canals from river to river, through our low grounds, would

be little more than to repeat what has been already said, in explaining the evils which arise from the want of them. It was remarked before, "*that the explanation of the evil pointed out the remedy.*" The benefits to be expected from the canal through the Collect and Water-street, have therefore been either virtually explained, in stating the evils felt and apprehended from the present system, (or want of system,) or will be inferred from what was stated, with a more particular reference to that through Maiden-lane. I beg leave, however, to re-state in different words the leading feature, (not the only one) in which the canals I advocate differ in their effect from all others. It is this:—A canal from the *land* to the river, must, in its *whole* course, be *higher than the tide water*, in order to give a sufficient descent. It must be, for the most part of its length, *much higher*, unless it is intended to be always choked with filth. It can therefore drain no grounds *so low* as the river-marsh. A canal, on the contrary, from river to river, is *level*; the floor is always below the ebb-tide, and therefore it may drain the grounds and cellars through its whole extent, with the *greatest possible descent*, to a point as low as the rivers themselves; and may receive the wash of the adjoining streets with the same advantage. The application of this to the canal through the Collect, is very remarkable. Of all the level and low grounds through which that would pass, I believe there is none, either towards the East or North rivers, which *can be drained without it*, or which *cannot* be perfectly drained *with it*. Let it be added, that these grounds, if not made uninhabitable, will one day compose a very populous part of the city.

THERE is not much to add on the separate merits, or importance of the canal through Water-street. Yet, this alone may determine the fate of the whole city.—On the made ground in front of Pearl-street, there are usually contained perhaps 20,000 people, including those whose daily occupations bring them there from other parts of the town. If fever is *epidemic*, on that ground only, the evil is enough to break

up the city—If *contagious*, its ravages will be the more extensive. If the canal through Water-street were open, the streets and drains of this vast mass of wharves, might be regulated with an ample descent each way to the water. The place would not be a receptacle for the filth of the rest of the town, and the inhabitants might with absolute certainty keep their streets clean, their drains and sewers pure, and their ground dry, down to the level of tide water. *This can be done in no other way.*

ACCORDING to what was stated on a former occasion, I presume, that the made grounds in Pearl-street, and to the front of it, may be estimated at about 90 acres. An acre will contain about 12 lots, besides its proportion of streets. The lots, with the buildings upon them, may, upon an average, be worth 6000 dollars each. The following are results of these premises :—

Dollars.

The total value of made ground, south of

Pearl-street, is 6,480,000

The nett annual rent and wharfage, at 6 per

cent. is 388,800

The rent of do. at do. for two months, is . . . 64,800

Two per cent. on the whole capital, is . . . 129,600

It has been shown, from premises which cannot be greatly erroneous, that the expense of such a canal as I propose, through Maiden-lane and Courtland-street, would be not more than 55,000 dollars for about half a mile.

In another paper, I also made a conjectural estimate of the amount of house-rent lost in a season of sickness. It is not material to that calculation, nor this, on whom the loss ultimately falls; whether on landlord or tenant—somebody loses it. If a house, which is habitable 12 months, is inhabited but *ten*, the difference is a clear loss, either to the *owner* or *occupant*. In my opinion, it will, if the sickness habitually returns, ultimately and certainly fall upon the *landlord*, as a loss clearly affecting both the gross value and the rate of rents. If fever is to be expected, all tenants will make their calculations for doing business but nine or ten

months in the year, on this ground. They can consequently do the less business in town. Allowances must be made for rents and other expenses, during the sickly season, in the country. All these things will enter into the calculations of tenants, and they will offer rents and hire houses and stores only in proportion to the effect of them. The whole centres in this—that a store in which I can do business but ten months in the year, is only 5-6th as valuable as one in which I can continue the whole year round.

Two months' rent is more than 16 per cent. of the whole. If, therefore, the fever is to be calculated for as a regular guest, it sinks the whole value of property affected by it, 16 per cent. If the return is *not* deemed *certain*, individuals will form various conjectures and speculations, and make their contracts accordingly; but never without reference to what they deem the greater or less probability of this event.

ON the other hand it is plain, that if any property were so situated, as to be deemed habitually liable to sickness for a specified time every year, that circumstance would be as true an incumbrance upon its value, as a mortgage would be upon either *value* or *title*. The owner could as well afford to pay a given sum, (say, upon the above supposition, 16 per cent.) to remove the *fever* as the *lien*.—Hence it follows, that if the owners of property so situated, were to pay any part of the value of it, (not exceeding the proportion of the sickly, to the healthy season,) and the money paid, were applied with *actual effect to remove the fever*, such owners would have the whole sum re-imbursed them, in the increased value of their property. If the fever could be avoided by a *less* expense than that which would be in proportion to the length of its visits, the difference would be so much gained by the proprietors. If the owner of a store worth \$6,000, should pay 100 for his proportion towards this object, and should obtain 6 dollars additional rent in consequence of it, he would be no loser; but if he paid less than \$100, or got the same or more additional rent, he would be a gainer.

I HAVE been thus minute, with a view to prove to the

proprietors of the made grounds, that *they*, (without including the rest of the community,) and merely *as proprietors*, and in *no other character*, have an interest of at least 60 or 70,000 dollars per year, in the great question of sickness or health. If the fever could be wholly prevented, their property would, upon the basis I assume, be at once affected in value either by an *actual rise*, or by *preventing its fall*, to the amount of more than *one million*. The canal through Water-street, would, according to a former calculation, cost about a *quarter's*, and not *three years'* rent, of the made grounds. It would cost *not 16 per cent.* of the gross value, but only about two per cent. of it. I appeal to the good sense of every proprietor, whether if such a canal were made, his property would not be much more enhanced in value than two per cent.

It will be distinctly understood here, that I have not supposed the mere making of a canal, to be the same thing as an exclusion of fever; nor have I intended to confuse one with the other, or to state them as necessarily connected. On this subject the principles assumed will, I hope, be remembered by most persons, and be thought reasonable. If, by whatever means, the atmosphere can be made to approach the purity of good country air, it is supposed that fever, whether imported or domestic, will be proportionably *less frequent, less contagious, and less alarming*, and therefore less injurious to *business* and to *property*.

NOR will it be apprehended, that I suppose the inhabitants of the district last spoken of, ought to pay the expense of such a work as I have advocated. I have mentioned that district from the peculiar unhappiness of its local situation, and from its near connexion with the canal. I wish also to engage the favourable opinion of the proprietors of that part of the city. But let it be stated explicitly, that in my view, the expense and the measure are objects of common interest and concern. The danger is almost common to all: the loss and inconvenience are quite so. They extend and apportion themselves through every class of society, and to every

local situation. To remove the evil, we ought to embrace and apply the whole circle of probable remedies. We should do this at the *common charge*, and with *united* and *cordial* exertion.

A HOUSEHOLDER.

October 31st, 1805.

Nº. IX.

Of the means of defraying the expense of the Canals—Of the new City-Hall.

THE means that occur for defraying the expense of the purposed canals, are, 1. The annual revenue of the corporation. 2. Loans from Banks at long credit, on the security of the corporation property. 3. Loans from individuals. 4. Taxation.

I HAVE been informed that the city corporation have a clear and independent annual income of 50 or 60,000 dollars per annum. It will be understood, that I do not speak positively of the amount, for the same reason that, as has been before mentioned, I am occasionally obliged to cite other facts in a manner somewhat vague, and sometimes conjectural. However, the revenue is certainly very considerable. A large proportion of it arises from city lots and houses and other permanent property, the rent of which will increase with the growth of the city. They also own very considerable quantities of unimproved lands, which of course produce no revenue, but are rising in value. The ordinary expenses of the city, such as the watch, lamps, alms-house, and many others, are defrayed chiefly by an annual tax granted by the Legislature. That tax is to be distinguished from what may be called the *Corporation revenue*. This last is necessarily applied in the first place to many contingent expenses, relating, I presume, chiefly to the support and improvement of the property itself, and perhaps to meet the deficiency of the tax, which the Legislature have seldom made ample enough for the purposes intended.

THE surplus of the corporation revenue (after providing for such necessary objects,) is now employed in *building a new City-hall*.

BUILDING "IS A BOTTOMLESS PIT." No man of sense ever thought of estimating beforehand the real expense of a great public building, undertaken by a public body. Some have imagined, that after the most liberal estimates made by the architects, it would approach probably to *triple* or four-fold the amount of their computation. Thus if the expense was estimated at \$160,000 (as I have heard that of the new City-hall was,) such persons have imagined that 480,000 or 640,000, might be assumed as giving some idea of the true amount. Such methods, and all others that I have ever heard of, are fallacious. Be the building a *Palace*, *Cathedral*, or a *Capitol*, it usually exhausts, after some years, the patience and finances of the King, Church, or Republic, that undertakes it. The obvious reason is, that there is no limit to the fancy of architects, or the claims of contractors, and that public bodies can exercise little control over these expenditures. Hence, such buildings are either never finished, or are only resumed at long intervals when new men rise up, who have not before exhausted their strength against mountains of marble. The temples of Egypt, that out-date all history, were left unfinished. The greatest palaces of Europe are unfinished. There are Cathedrals that have been 500 years in building. The capitol at Washington, and I believe that at Richmond also, are unfinished. Our City-hall will long remain in the same situation. Like the buildings usually undertaken by public men or bodies, it is an object far beyond our resources. If the State of Virginia has already employed twenty years upon her capitol, and the power and resources of the United States have been able in twelve years to raise but one wing of theirs, when does the single city of New-York expect to finish a work so much more disproportionate to its means than those buildings were to the resources of the nation and state that undertook them? *Public buildings are the bottomless pit of finance.*

I MENTION these circumstances for the purpose of showing that, to the present generation, it is of no consequence whether the Hall progresses or not.

A FEW thousand dollars would put a new roof upon the Federal hall, and liberate a revenue, the surplus of which would, I should hope, be then not much short of 50,000 dollars per annum, and possibly would exceed it. We have seen that this sum would make half a mile of the proposed canals, and in that way would, as I conceive, be of more public benefit than by adding half a story of marble to the hall. My decided opinion therefore is, that this building should be put in a state of preservation, and the work suspended. The Federal hall should be repaired if requisite, or other buildings provided for temporary use. With entire respect for the liberal and public spirited views which no doubt have governed the corporation, I cannot but think it greatly erroneous for us to be building a magnificent palace, while no effort is made to relieve ourselves from the grievous effects of a calamity which we have now so often and so severely felt.

BUT if this opinion should be rejected, or if additional sums should be required to effect the end proposed, a second resource would be that of permanent loans. These might be procured of the banks, to whom certain branches of the revenue might be pledged and made payable, or the unimproved lands be pledged till the debt should be extinguished. This would be a means of anticipating a revenue which could never be applied to better purposes, and the application of which would, in its benefits, greatly overpay the interest of the money.

A SALE of *corporation property* may be mentioned as one of our *possible* resources; not as advisable. *Taxation* is in my view quite unnecessary; but if resorted to, should be equal upon all the City except the 9th Ward*.

* Since this number was published, I find there has been some conversation in town about obtaining a *Lottery* to defray the expense of some of the canals. If we must have Lotteries, they surely ought to be applied to purposes of the greatest public benefit, as some small compensation for the infinite mischief they occasion. They are a tax upon the *poor*, and of all taxes the most burthensome.

IN reference to voluntary loans by individual subscription, I cannot but remark, in vindication of our citizens, that facts have abundantly shown them not to be wanting (as has been invidiously asserted,) in public spirit to execute any work of public charity, ornament, or use. If it should be thought necessary to resort to individuals, they could advance given sums, to be paid in anticipation of the taxes of future years, or to be refunded otherwise, according to some provision of law. The subscribers would lose *nothing* by the loan and advance, or nothing but the inconvenience of advancing money upon customary interest.

I FORBEAR further to remark upon these last expedients. Public spirit will not fail us, if it shall become necessary for so laudable a purpose, to call either for legal or voluntary contributions. In my opinion, it never will be necessary. The Corporation revenue is the proper and legitimate fund for the public works of the city; a fund, however, which I insist, should be applied rather to useful than ornamental purposes; to preserve the health and lives, rather than gratify the pride of the citizens; and not to erect monuments of public magnificence on Potters-fields, and among Hospitals, nor on the borders of desolation and pestilence.

A HOUSEHOLDER.

November 4th, 1805.

N°. X.

Summary of the benefits to be expected from Canals.

HAVING asked the public attention possibly too long on the leading subject of several preceding letters, I should not offer a recapitulation of ideas, which I hope are now well understood, were it not for the sake of presenting at the same time a short view of some benefits to be derived from

canals, which are merely *incidental*, and the more particular discussion of which, is not therefore within the scope of my general design. And, if on this or other occasions, I appear to repeat the same thing sometimes unnecessarily, or to explain that which is already explained, it ought to be recollected, *first*, that essays which concern a whole community, should be adapted to those who are little attentive, or slow to be convinced, as well as to others. And, *secondly*, that newspaper publications are not usually read in connexion, like books, and that each letter ought to be, in some degree, intelligible by itself.

IN making the following recapitulation and summary, I leave the public to judge how far it is matter, not of conjecture, but of certainty, that if the proposed canals are made, and properly constructed, every benefit I enumerate will actually be experienced.

1. CANALS from river to river, furnish the only possible means of draining to any considerable extent, such *natural marsh grounds*, as are near the water's level. Natural swamp will always continue such, notwithstanding any thing that may be piled upon it. *Draining* is the only cure, and every farmer can show examples of its efficacy. This advantage applies to the marsh round the Fly-market and Maiden-lane ; to the extensive one near the Swamp Church ; to the grounds at Mr. Lispenard's, &c.

2. WHEN the filth and wash of the town is, in effect, *dammed up* by made-grounds, as is done along the whole south-east part of the city, canals furnish the only possible means of giving that filth free access to the river.

3. THEY furnish new points, through their whole course, for streets to descend to, and if any places exist where sewers would be necessary, for them also. In this way, many streets may be made sufficiently descending, which must otherwise remain for ever level. This advantage will include, in its application, perhaps half the city. It applies with full force to all the places last named, to all the made-grounds on the East river, and to many other places.

4. THESE canals will carry the filth they receive *utterly* away, and be themselves *always* and *certainly* pure.

I PURPOSELY state this position in strong terms, and will add a word or two to justify it. It was proved, as I think, on a former occasion, that the Water-street canal would shift its water at least 16 or 18 times day. But the calculation from which that inference resulted, was, like all I have presented, drawn from *data* taken much too strongly against myself, and in favour of the supposed objection. I have no doubt, but that canal would be filled entirely with new water *much oftener* than is there supposed.

It was shown before, that if the tide has a descent which will carry it three miles an hour, in the long and circuitous course round the point of the Battery, the same fall, applied to a short and direct course across the Island, ought to carry it, at least, as fast; but it clearly *would* carry it *much faster*. The tide would also, I conceive, begin to run in such a canal sooner than it could be perceptible in the river, and continue to run considerably, after the water should be slack, or nearly so, in the great natural channels. From all this, I presume it not unfair to suppose a current through the two upper canals, equal to three miles an hour, through the whole day—the canal of Maiden-lane would be about half a mile long. The water would therefore run entirely through it 6 times an hour, that is, 144 times a day. It would be 72 times a day, if the current were supposed to average only 1 and 1-2 miles an hour, through the whole 24 hours.

In another point of view :—Suppose it at any given moment slack water in the canal, and that in one moment more the tide will begin to move. This is exactly the time, when the canal will have the most filth it ever can have; for the water will be vitiated by all the impurities that have emptied into the canal, since the water of it was last changed by the tide, which, in this case, may possibly be half an hour, or an hour. In a few minutes after the tide begins, this water will be driven from the canal into the river.

When driven into the river, it must go with the tide, as far as the tide goes, which I believe is several miles either way. So far will the impurities of the city be driven from it!

5. THE Water-street canal, (and any other similarly situated) has this peculiar advantage, that it can *totally change the foul water contained in the slips*, and which it is well known the tide does not at present change. If the use of slips should be continued, this would be an important advantage, and would perhaps enable us to retain some of them which are useful, and which must otherwise be filled. The method would be to open a *cross-canal* to the head of the slip, and turn the water into it by a gate at pleasure. The current in the canal might easily be made somewhat higher than the water in the slip*.

6. IN many instances, considerable private benefit would result to individuals from cellars, which could be had by means of the canals, where none could be safely kept without them.

7. MARKETS placed over such canals, might be kept always quite pure and free from ill scents, which is far from the case at present. The floors and environs of the market ought to be washed every day, by water drawn from the canals, and descending rapidly to them again. No markets should be placed but in such situations. This advantage would apply with full force to Fly-market, which we are accustomed to exhibit as the pride of the city, and which, with its narrow level streets that are never washed, with the sewer underneath, that is seldom empty of filth, and with the wet cellars on each side, and the slip in front,

* But, supposing no current to be produced, if the passage to the slip should remain constantly open, still it might always be created by totally shutting the canal for part of a tide. For, suppose at ebb-tide, it were wished to change the water of Coenties-slip : shut the gates of the main and cross canal at that place, till the water at the gates has arisen as high as at Peck-slip, or at Corlaer's Hook ; then open the gate of the cross canal, and the water, being certainly higher than the slip, will rush into it. A few repetitions of this operation, would change the waters of the slip.

forms, altogether, a place requiring such a radical reformation as canals only can accomplish. Similar observations are justly applicable to Oswego-market. This would seem placed upon the most conspicuous and elegant of our streets, as if on purpose that its filthy environs and starved supplies should hold the town up to the derision of strangers. If a market must continue in that place, it can only be made decent by the aid of a canal. The present one is a scandalous nuisance, and ought to be removed wholly.

THE advantage of placing markets over canals will become immensely important, at the time when the town shall have extended beyond the Collect. That vicinity must then have either great markets, or great hospitals : the latter will suffice, if our present system is pursued ; but if a reformation takes effect, the place will require great markets. The Island is there more than a mile broad. I hope (for posterity's sake) it is not intended that the blood and filth of markets, for perhaps fifty thousand people, shall run half a mile each way to the rivers, over hot streets, under a hot sun, and upon a descent scarcely sufficient to keep clear water in motion.

8. THE canal through the Collect might, and certainly ought, to be made convenient for the passage of market-boats. A bason in the Collect might be made to receive them. It is far from impossible, that such a canal might be one day of much public benefit in the transportation of fuel and all heavy commodities.

9. I LEAVE to professional men the question, whether the Corporation could impose a toll upon market and other boats, using the canal through the Collect. If there is a doubt about the power, I think there can be no question but the Legislature would readily confirm it. Such a toll would, on one side, be a just consideration for benefit received, and on the other, well merited by the expense of the canal, which might in time be perhaps partially or wholly repaid by it. It would be a gratifying consideration, if our funds could be so expended, as at once to accomplish objects of great public uti-

lity, and to lay the foundations of an increasing revenue, for the growing wants of the city. Roads, bridges, and canals, on which tolls are paid, not unfrequently repay the entire amount of the principal and interest which they cost, while, at the same time, they operate as a benefit, and not a tax upon each person who has used them. The effect is, that, after a course of years, they exist, without having finally cost any thing, to any body.

10. THE canals would furnish a certain and inexhaustible supply of water for fires, through their whole course. This alone would be an important addition to the public security.

A HOUSEHOLDER.

November 6th, 1805.

Nº. XI.

Of Sinks.

AMONG the sickening odours which taint the springs of life in our city, that which usually predominates, proceeds from the *sinks*. I believe New-York and Philadelphia are among the few cities in civilized countries, where a perpetual and accumulating source of this scent is kept in near connexion with every house, and made to infect the whole mass of the earth and water below, as well as the air above. This odour reaches every recess of our houses; it penetrates further than any plague of Egypt, except its darkness. It assails us in the streets, attends us at our meals, and pursues us into the assemblies of conviviality, fashion, and pleasure.

I ENTER into no arguments, nor ask for experiments, to prove whether air filled with such an exhalation is unhealthy. To me it seems, that nature and instinct, and *reason*, (if it were necessary to detail the arguments,) show us that it must

be so. But let those who doubt this, remember, that though there may be danger in *keeping*, there is none in *removing*, this odour. The air *can be* healthy without it.

WHEN entering upon this subject, I imagine some readers may ask whether, after having complained of swamps and made grounds, and stagnant water, wet cellars and sewers filled with putrefying filth, I am now to assign another cause of epidemic fevers? Allow me to recur to some principles with which we commenced. I assign *no* cause for any particular fever—I hold all disputes about the origin of them to be futile—Our climate is healthy—York-Island is healthy, except where the city stands, and the yellow fever penetrates not beyond it. The perverse and mischievous ingenuity of men has filled the town with sources of worse plagues, if that were excluded—If *admitted*, the same causes furnish the only means of its *propagation*.

I PROPOSE that every sink without exception be filled with earth, and that moveable tubs be used instead of them.

BEING perfectly aware that a strong prejudice exists against this arrangement, from the inconvenience attending the removal of such vessels, I hasten to show how this may be obviated. Nothing is easier than to fit a cover to the top of these tubs by means of a groove so exactly as to be water tight—This may be secured by a latch or hook, to prevent accidents in the removal. Common ingenuity, aided by a little experience, would teach us so to construct and place these vessels, that the external part of them would not be impure, and that the removal and return of them would not be attended with the least offensive circumstance.

If I multiply details upon this subject, I hope it will be attributed to a conscientious persuasion of its importance, and to a desire of removing the prepossessions which I know will militate against the proposed reform.

LET me therefore add, that by a general regulation, all these vessels should be made of the same dimensions: That the corporation, or an officer or contractor, might have low four-wheeled carriages, so constructed as to receive and hold

firm in places fitted for the purpose, a given number of the tubs. Even boats might attend at fixed places, and, being fitted in the same manner, might convey them away to a place of deposit for the contents. The tubs should be perfectly washed and returned. Perhaps this arrangement might require that two sets of them should be prepared, to be used alternately by each family. By these or like methods, there is no doubt but the exchange or removal of the tubs might be made even in the day time, without any unpleasant circumstance, and certainly without the very disgusting effects which we now often perceive from the emptying of the present sinks.

IN Europe, at least in England, this ordure is eagerly purchased by farmers for manure, and by that means the removal is procured without expense to the house-keeper. I am not quite sure whether the towns themselves derive any revenue from it. It is mixed with mould in proper deposits, and laid up to make a compost.—The city corporation might have deposits for this, as they do for other manure.—The farmers and gardeners would soon find a benefit from the use of the compost ; and, in all probability, the city might, by means of it, double the revenue it now derives from manure. But whether the operation costs or saves money, is little important—*The great consideration is that of health.*

A HOUSEHOLDER.

November 8th, 1805.



Nº. XII.

Of wet Cellars, back Yards, and sunken Lots.

THE measures which in this paper, I intend to submit to the public, are these following : That every wet cellar, sunken lot, and low back yard, be filled or raised, as the case may require, so that the water may be carried off, or be pre-

vented from collecting in them ; also, that by means of gutters or open channels and drains on the surface, all waste water be universally led off, and that all places which cannot, by these means, be kept sufficiently dry, be drained under ground.

THESE measures are so obviously proper, necessary, and urgent, that one is at a loss how to use argument in support of them, without the appearance of trifling. Does any person doubt whether collections of stagnant water are always unhealthy in the hot season, and peculiarly so in confined situations ? Nobody doubts this ; and yet they exist in numberless cases. Is it then proper that individual citizens, whether through interest, inattention, or ignorance, should be permitted not only to continue these wet cellars, but to build new ones, without limitation of number or place, and to the imminent hazard of the public health ? This is dangerous and destructive, *and is constantly done.*

FROM the laudable zeal of the Common Council, and vigilance of the Officer under whose care this branch of the police falls, I understand that great reformatations on this head have lately been made. I pretend not even to know whether the powers granted by law to these officers, (for I am told their powers are limited) would enable them to do more than has been done : Without, therefore, presuming to form any judgment on this head, I object totally to all these efforts, because they are only *occasional, desultory, usually too late*, not directed by any *general system*, nor carried *far enough*.—For example :—

THE inspector finds water gathered in some particular lot, endangering the safety of the neighbourhood. He must wait, perhaps a week, till the corporation meet. They then legislate for that particular place, and order it to be filled up to some height proposed by him : the order is then notified to the proprietor, who, perhaps, some time after, makes arrangements for obeying it. Meantime, it is impossible that the gentleman who superintends this branch of the police, should have accurate surveys of the heights of all the

neighbouring grounds and cellars, or if he had, that they could be of much use, except in another way of proceeding. The water, therefore, which is driven finally from that place, gathers in the next neighbour's yard or cellar, or dissipates itself among all the lowest grounds and places in the vicinity. It must exist somewhere, and will find its level. In doing this, it is apt to pay very little attention to the geometrical lines and board-fences which divide our lots. The same water may next be heard of in an adjoining square, and may employ the police a whole summer in *chasing it from one place to another*. It will seldom happen, that the water is collected, discovered, become a nuisance, complained of, and the law concerning it made, notified, and executed, before it has done much of the injury it is capable of doing. The delay, however, is the fault of the laws, and not of the officers.

THIS whole system is *inefficacious*. The subject requires a *thorough, systematic, and vigorous*, reform. A survey should be taken of every declivity of ground exposed to wet, in which should be noted the descent throughout, and the comparative depth of all the cellars, yards, and sunken or low places in it. The yards should be made all descending to the street, or to some channel, which will receive and convey away their waters. The descent should be regulated with such a reference to the whole declivity of ground, and the outlet of the water, that one lot may not interfere with another, and that the whole may be sufficiently and equally drained. The wet cellars should be raised to heights proportionate to each other, and to the water inclined to run into them. Many require 6 inches or a foot of additional earth, and some 18 inches, or possibly more. Sewers and sunken drains should as much as possible be avoided, because experience shows, that the best of them will breed bad air. They are, however, a less evil than stagnant water, and therefore, wherever the springiness of the ground, or other causes, produce collections of water that cannot be drained along the surface, sewers should be made. In

short, the leading idea is, that water should be taken away, instead of being left stagnant ; it should be drained off, and not *hid*. This draining can only be well done by a general and systematic regulation of all the grounds and low places upon each descent, or *side-hill*, and individuals should be required, for the public good, to endure the inconveniences it may sometimes occasion.

THIS measure is the one which I conceive the most difficult to execute, with that strictness and universality which are essential. Indeed, it can be properly carried into effect only by a cordial co-operation of the public opinion with laws well framed, and vigilantly executed.

A HOUSEHOLDER.

November 13th, 1805.



Nº. XIII.

How far the unhealthiness of city air, is a necessary evil incapable of remedy.

IT should be kept continually in view, that, when yellow fever is brought into country places in good air, it never, or scarcely ever, has been known to spread, even among those who have had the most constant and unreserved intercourse with the sick. I re-state this as a fact, to which possibly, two or three exceptions may be found, but which is confirmed by the general observation and personal knowledge of most of us. A certain defence, therefore, not only against yellow fever, but against the *peculiar* operation of all evils, which waste human life more in cities than elsewhere, is to render our atmosphere pure, like that of the country. Hence, also, the foundation of my speculations has been the inquiry, "*Why our air differs from a good country atmosphere?*" The answer to that inquiry, has pointed

out the objects to which I have presumed to draw the attention of the public.

I AM not unmindful, that many will suppose this inquiry to be useless, and the end I seek for, impossible to be attained. Their objection will go upon the ground, "that the air of a great and thickly inhabited town, *must* be so contaminated, by the mere breath and effluvia of men and animals, as to be necessarily, either the *parent* or *vehicle* of disease."

THIS opinion requires examination.

THE first consideration to which it gives rise, is, that in proportion to the inherent difficulties of our situation, we should make the greater efforts to cure all those evils which are susceptible of remedy. *That* corruption of the atmosphere, which *must* arise merely from crowding together many living creatures in a small compass, is the *only necessary evil* attending us—every other can certainly be removed *from* a city, or prevented *in* it. It is worth while, therefore, to consider what is the *necessary extent* of this corruption.

I WILL suppose, that every superficial space of 25 feet by 100, contains equal to 6 persons. It is, I believe, received among Physiologists, that each person, by breathing, consumes or vitiates about 1 gallon of air in a minute. Admit also, that animal perspiration and effluvia, will corrupt another gallon a minute to each person, and that the height to which we are to consider the atmosphere, as affected by these causes, is 30 feet.

THE cubic contents of air, in such a space as I have described, would, at 2 gallons per minute, for each person, be sufficient to support 6 persons somewhat more than 30 days—(I give the *data* and results only; any one can verify the calculation,)—Consequently, if each such space of air, were, with 6 persons in it, excluded from all communication with the rest of our atmosphere, it would be, at the end of 24 hours, but 1-30th part adulterated—at least, it would be so, according to numerical proportions, which, though perhaps *not certainly* applicable to these cases, are still the only

ones we know, or can use in this way of considering the subject. The case put, also supposes the whole 6 persons to be confined in a tight box of the dimensions stated; and by the same reasoning, we may suppose the whole town covered over, at the height of 30 feet, and quite enclosed; and *under these circumstances it is*, that at the end of 24 hours, the air would be but one thirtieth part of it vitiated and destroyed, by breathing and perspiration.—When, therefore, we recollect how *little*, in comparison, the town is *actually confined*, and how often the air is changed by winds, rain, and other causes, we must perceive that the vitiation of the atmosphere, caused by the mere presence of men and animals, is infinitely small.—It is by *other* means, and those *capable of being removed*, that our atmosphere is made sickly.

IN presenting something like calculation, and argument *a priori* upon such a subject, I hope not to be misunderstood by the public. I know, that these means can never lead to *exact* results, *neither is that necessary* for the present purpose. I know, also, that when injudiciously applied, or too far relied upon, they often mislead us: but, on a subject not susceptible of exact experiments, and likely to be the sport of vague surmise, I insist there is a benefit in fixing any points for the guide of opinions, otherwise lost on the ocean of conjecture. So much, however, for *theory*. Let us also consider what practical demonstrations we have upon this subject. The Jail, Bridewell, Alms-house, Hospital, and State-prison, are places where a vastly greater proportion of persons than have been mentioned, are crowded and kept together. By the cleanly habits, and excellent police there exercised, not only have no *Jail-fevers*, or other contagious disorders, originated in those houses, but the yellow fever has never *spread* in them.

I PUT forward these great and leading facts, in lieu of volumes, upon the contagiousness of this disorder, and upon the possibility of rendering our air as pure as I contend it may be rendered. The jail of New-York, often surrounded by fever, and with which the city maintains a constant intercourse,

has never been infected ; or, what is still more important, if any case has happened, the disease has not *spread*. Patients have often died of yellow fever in the New-York Hospital ; but I am told there is no example of its communicating to attendants or other patients. Such is the effect of cleanliness and good air, in places much more crowded than any part of the town.

THE great inference from these facts is, that “ *there are no causes favouring the rapid progress of yellow fever in the city, but what, under the blessing of divine Providence, we can remove.*” The question is, “ *what are we willing to do ?*” Is there understanding and public spirit enough among us, to make some small sacrifices to attain objects of incalculable value to us and the country, to this generation, and to many yet unborn, whose fate depends on our decision ? *We can* make the whole city as dry and clean as our public prisons, hospitals, and alms-house, though, generally speaking, it is now incomparably less so. *We can adopt* even that degree of public cleanliness, for the sake of preserving our lives, which the inhabitants of Holland use for their own comfort. Who believes, that the yellow fever ever *could* spread in a Dutch village ? How many instances are there of the plague in that country ?

To effect the reformation I wish, every offensive place, however inconsiderable, should be altered and cleansed. Water and filth now stagnate and putrefy in thousands of level gutters and sewers, and in sunken lots, wet cellars, filthy slips, and other deposits. Every one, even the least of these, contributes its share to the general contamination. The mass of ground under half our city, is a body of filth and corruption, incessantly pouring forth its exhalations in warm weather into our houses and streets. The atmosphere is tainted by a million of odours from a million of places, each of which has lent its separate poison to complete the mixture which we breathe under the name of air. Hence, the infantile disease carried off 61 of our children in one

week the last summer ; and hence, beyond all controversy, the *spreading* of yellow fever.

It is not by filling a slip in one part of the town, and a sunken lot in another, nor by any desultory operations arising from the exigency of particular evils *after* they have happened, that we can perform the great work of restoring our atmosphere to a state of purity. These evils must be *anticipated*, rather than removed ; *prevented*, not cured. If the mass of ground beneath is drained by canals, and the surface kept cleanly, and no deposits of filth, or stagnant water, are allowed, the air *cannot be bad enough to spread yellow fever very widely*.

A HOUSEHOLDER.

November 28th, 1805.

P O S T S C R I P T.

I HAVE revised these letters, and now present them to the public, with the same views by which they were dictated. There are subjects yet in reserve which require volumes, and upon which, laying aside all party dissensions and idle disputes, we ought *now to act*, if we act at all, with united counsels, and with the aid of whatever good sense and public spirit remain among us.

OUR quarantine laws are totally inefficient. They may be summed up in this: That yellow fever, if imported, should be brought by *land*, and not by *water*. In one of the foregoing letters, a pretty decisive opinion is hinted, that we have no government or police in this country strong enough to make and execute efficient quarantine regulations. Prohibitions will not prevent the people of neighbouring towns from coming here, nor when here, from falling sick with a fever caught before; neither will a penalty of \$1000, (even if a suit or a conviction for it had ever been heard of,) cure the fever when it comes. The only proper way is to have guards and prisons—a general system for granting *Passports*—to detain travellers who have them not—and to punish *capitally* those who come from infected places or vessels, without them.

CERTAINLY we shall not *make*—and if we do make them, we shall not *execute*—any laws like these. In my own opinion, therefore, we might almost as well repeal our quarantine laws wholly; but it may be proper to retain, and even amend them, from respect to the opinions, and for the repose of a great portion of the community. Perhaps also they diminish the *chances* of infection; but they furnish *no solid security* against imported fever—and I have said often enough, that upon our

present system, it is immaterial whether fever is imported or not.

WE need some provision for furnishing the city with WATER for *culinary* use, for *fires*, and for cooling and cleansing the streets. This subject is immensely important. My limits forbid me to enter upon it.

WE most urgently need some regulation for laying out streets, in all those parts of the town which are not yet irretrievably ruined. Every year this is postponed, adds incalculable sums to the expense at which it can be performed. That expense will in fact prevent the regulation altogether, in extensive districts. Thus the fate of thousands is hourly committed to accident, and the blindest calculations of interest or ignorance. This remark applies, however, in no degree, to any public body or officer; it is not their fault—but the want of proper powers properly vested. The widest and most level parts of the city are yet to be built upon: unless those parts are laid out upon plans and descents very different from any hitherto practised, posterity will experience calamities, of which *we* have had *no example*.

MUCH REMAINS—but, like other citizens, I am occupied by far different cares; and I return to my store and household. I give these letters to the public with perfect indifference to the papers themselves—but with the utmost anxiety that the subjects should be well considered—in the humble hope that they may call forth the talents of abler men—and with the consoling reflection, that I have contributed a mite of effort, (I hope not unavailingly,) towards the common safety.

December, 1805.



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